

1.6

Angles and Their Measures

Goal Measure and classify angles. Add angle measures.

VOCABULARY

Angle, Sides, Vertex

Measure of an angle, degrees

Congruent angles

Acute angle

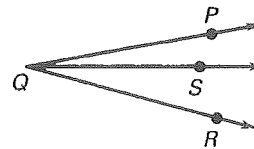
Right angle

Obtuse angle

Straight angle

Example 1 Name Angles

Name the angles in the figure.

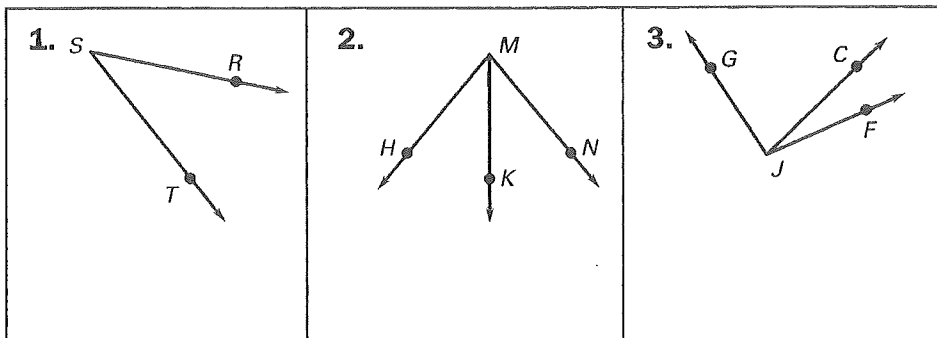
**Solution**

There are three different angles.

$\angle PQS$ or _____ $\angle SQR$ or _____ $\angle PQR$ or _____

Follow-Up

In Example 1, why should you *not* name any of the angles $\angle Q$?

Checkpoint Name the angles in the figure.**Example 2** Measure Angles

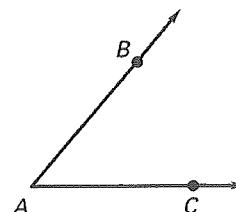
Use a protractor to approximate the measure of $\angle BAC$.

Solution

Put the center of the protractor over the vertex point A.

Align the protractor with one side of the angle.

The second side of the angle crosses the protractor at the 50° mark. So, $m\angle BAC = \underline{\hspace{1cm}}$.



Example 3 *Classify Angles*

Classify each angle.

a. $m\angle A = 130^\circ$

b. $m\angle B = 90^\circ$

c. $m\angle C = 45^\circ$

Solutiona. $\angle A$ is _____ because its measure is greater than 90° .b. $\angle B$ is _____ because its measure is 90° .c. $\angle C$ is _____ because its measure is less than 90° .**Follow-Up** Use your protractor to sketch each angle in Example 3.

$\angle A$	$\angle B$	$\angle C$

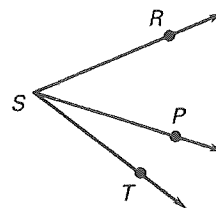
✓ Checkpoint Classify the angle.

4. $m\angle D = 17^\circ$	5. $m\angle E = 180^\circ$	6. $m\angle F = 173^\circ$

POSTULATE 6: ANGLE ADDITION POSTULATE

Words If P is in the interior of $\angle RST$, then the measure of $\angle RST$ is the _____ of the measures of $\angle RSP$ and $\angle PST$.

Symbols If P is in the interior of $\angle RST$, then $m\angle RSP + m\angle PST =$ _____.



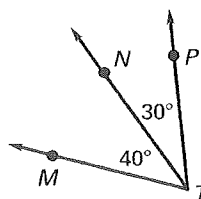
Follow-Up Compare and contrast the Angle Addition Postulate with the Segment Addition Postulate in Lesson 1.5.

How are they alike?

How are they different?

Example 4 Add Angle Measures

Find the measure of $\angle PTM$.



Solution

$$m\angle PTM = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

Angle Addition Postulate

$$m\angle PTM = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

Substitute angle measures.

$$m\angle PTM = \underline{\hspace{2cm}}$$

Add angle measures.

Answer The measure of $\angle PTM$ is $\underline{\hspace{2cm}}$.

✓ Checkpoint Find the measure of $\angle ABC$.

